

CLAIMS

1. A method for treating a fetus comprising administering mesenchymal stem cells to the fetus.

5

2. The method of Claim 1 wherein the mesenchymal stem cells differentiate *in vivo*.

3. The method of Claim 1 wherein the mesenchymal stem cells are modified 10 with exogenous genetic material.

4. The method of Claim 1 wherein said fetus is non-human.

5. The method of Claim 4 wherein said mesenchymal stem cells are human.

6. A method of engrafting mesenchymal stem cells, comprising: administering mesenchymal stem cells to a fetus in utero.

7. The method of Claim 6 wherein said fetus is non-human.

8. The method of Claim 7 wherein said mesenchymal stem cells are human.

9. A method of preparing an organ for transplantation, comprising:

25 (a) administering mesenchymal stem cells to a non-human fetus in utero; and

(b) harvesting said organ.

30 10. The method of Claim 9 wherein said non-human fetus is ovine.

11. The method of Claim 9 wherein said mesenchymal stem cells are human.

12. The method of Claim 9 wherein said organ is harvested after the birth of said 35 fetus.

13. A method of xenotransplantation comprising: transplanting the organ of Claim 12 into a human patient.

40 14. The method of Claim 13 wherein said organ is a heart.

15. The method of Claim 13 wherein said organ is a pancreas.

16. The method of Claim 13 wherein said organ is a kidney.

45